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ABSTRACT

This document presents a description, or framework, that can serve as a guide at both the macro and micro levels so colleges and universities in Ohio can and will integrate school-to-work (STW) into their teacher preparation programs. The framework provides platforms for discussion that prompt and necessitate each institution to examine and change the composition of their program and the means of delivery of their preservice teacher education program. Parts of the framework group into two general clusters: contextual framework and discussion platforms. The contextual framework has the following parts: a vision for preservice teacher education; mission of STW; philosophical context and descriptions of how STW relates to each of four orientations (academic rationalism; development of cognitive processes, personal relevance, and social adaptation/social reconstruction) and meets the needs enumerated in them; rationale behind STW; and economic assumptions. The discussion platforms include the following: relationships of STW and state curriculum models and Ohio teacher education and licensure standards; model for integrating STW into preservice teacher education programs in Ohio; strategies for integrating STW into teacher education programs; barriers/issues and solutions; and outcomes for preservice teacher education programs related to STW. Appendixes contain the following: 12 references; work-cluster concept map; the dimensions of work; Ohio Model Curriculum; the dimensions of school; and description of general and interpersonal competencies. (YLB)

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A Framework for Integrating School-to-Work into Preservice Teacher Education Programs

A Publication of
The School-to-Work Systems Integration Coalition:
Preservice Teacher Education Framework Project

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A Collaborative Effort of
The State University Education Deans, The Ohio Board of Regents, and The Ohio Department of Education

Funded by Ohio School-to-Work

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As an equal opportunity employer and service provider, it is the policy of the state school-to-work office and supporting agencies that educational activities, employment practices, programs, and services are offered without regard to race, color, national origin, sex, religion, disability, or age in employment or the provision of services.

Introduction and Acknowledgments

This Framework is a result of a two-year discussion by a work team consisting of faculty from universities across Ohio and others representing various organizations interested in the preparation of future teachers to be effective in schools in which educational reform efforts include school-to-work. The ideas in this document have emerged from that dialogue.

The work team members' insight into the teaching and learning process allowed for the Framework to emerge as a scholarly, yet practical document. Various team members contributed to the Framework by offering ideas, organizing thoughts, writing sections, reviewing drafts, and supporting the process. Significant contributors to particular sections are acknowledged in footnotes throughout the document. These work team members are especially recognized for providing leadership in writing those sections. However, all work team members offered important input for the various sections. Indeed, this document is a result of collaboration among all of the team members. The names of the work team members are listed on the inside front cover of this monograph.

The Framework is one of the products created in the project, "School-to-Work Integration: Preservice Teacher Education Framework." The project is one of four funded by Ohio School-to-Work through the State University Education Deans (SUED) organization, in collaboration with the Ohio Department of Education and the Ohio Board of Regents.

As principal investigator of this project, appreciation is extended to all of the team members. In addition, on behalf of the work team, thanks is offered to those who reviewed the document: Dora Bailey, Cassaundra El-Amin, Patricia Hauschildt, Dean Clara

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The coalition management provided by Nancy Zimpher, Susan Sears, and Sandra Pritz of The Ohio State University not only provided effective coordination among the four SUED projects, but Sandra Pritz's liaison role on this project's work team proved critical to the achievement of the project's objectives.

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A Framework for Integrating School-to-Work into Preservice Teacher Education Programs[1]

The School-to-Work Opportunities Act passed by Congress in 1994 addresses the importance of helping all students in public elementary and secondary schools acquire the knowledge, skills, abilities, and information to prepare for a smooth entry into the work environment. Although smooth entry into the work environment is the goal, this Act tends to go beyond current educational programs that lead to specified careers. Individuals discover after they leave formal schooling that learning and working are inseparable and interwoven throughout life in our contemporary society. In some cases, learning becomes a natural course whether it supports work and/or one's general quality of life. The School-to-Work (STW) initiative has sought to develop the recognition that work provides individuals the opportunity to develop in order to obtain from society what they need to live their lives (e.g., food, shelter, and leisure), and to do so in a meaningful and satisfying way. This recognition and understanding requires knowledge, skills, abilities, and information that can be learned in schools. Indeed, embracing this perspective brings relevance to learning and schools.

In order to weave the concepts of school and work into the lives of our children, educators can look at the way we teach our teachers who educate students. Through the experiences of a team of university and college faculty and educators, it was discovered that the incorporation of STW into preservice teacher education began to drive discussions and encourage refinement in respective curriculum and courses of study. The aim of the discussions has been the advancement of quality integration of STW into academic instruction in order to embody and embrace the comprehensive nature of work

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[1] Robert G. Berns and Darcy Haag Granello are acknowledged for their significant contributions to this section.

and the individual's relationship to it. This document is a result of a two-year discussion by this work team, and it brings relevant philosophies to confluence in a Framework to be used by each university or college to form a basis for their own discussions.

History of Preservice Teacher Education and School-to-Work[2]

This document provides a description, or Framework, of how university and college faculty members, drawn from Ohio's higher education institutions and involved with preservice teacher preparation, view their roles and responsibilities and the foundation of their programs that pave the way for children to move from school-centered lives to work-centered lives. The following Framework can serve as a guide at both the macro and micro levels so that colleges and universities in Ohio can and will integrate STW into their teacher preparation programs.

For Ohio's STW system to succeed in preparing today's youth for the employment and educational opportunities of tomorrow, education, business and industry, organized labor, community-based organizations, non-profit organizations, parents, and students must forge partnerships and relationships that enable pupils to integrate school-focused and work-focused learning and foster real-world applications of discipline-related principles and concepts. Key players in these partnerships are faculty members in Ohio's universities and colleges who are responsible for preparing teachers, counselors, and administrators for the public schools.

Ohio's commitment to build a strong and comprehensive STW system depends on strengthening the connections between education

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[2] Robert G. Berns, Dora L. Bailey, and Abbejean Kehler are acknowledged for their significant contributions to this section.

and employment, whether that employment comes before, during or after high school graduation, vocational or technical training, college preparation, or graduate study. STW experiences are for all children (i.e., early childhood, middle childhood, and adolescents), including those children with disabilities, with limited English proficiency, and with diverse racial and cultural backgrounds. The goal is to develop in all children the competencies, confidence, and connections that can lead to successful work lives and responsible participation in the community.

This Framework is a product of a project funded by Ohio School-to-Work through the State University Education Deans(SUED) in conjunction with the Ohio Department of Education and the Ohio Board of Regents. As a part of this project, "Ohio's School-to-Work Systems Integration Coalition: Preservice Teacher Education Framework," a team of faculty from six public universities in Ohio created an initial Framework plan in 1997, intended to be an evolutionary piece, continually revised, updated and enhanced by university faculty members. University faculty who participated in the Integrating School-to-Work into Preservice Teacher Education Conference in July of 1997 advanced the Framework in both substance and form. Participants used this pilot project as a starting place for discussion and professional growth. Through the experience new partnerships were forged among colleges and universities as well as with local education agencies and regional alliances. In essence, the School-to-Work Preservice Teacher Education Project's Work Team invited all college and university faculty to become involved in the creation of this exciting new approach to education.

As a result of the second year funding for this project, the work team was expanded to include representatives from private colleges and other universities, Ohio School-to-Work Coordinators, Professional Development Center Directors, and Career Development Coordinators. In addition, principal investigators of planning and

implementation grants awarded to eight universities served on the work team. These grants provided funding for activities intended to integrate STW into preservice teacher education programs at the universities.

The following Framework provides platforms for discussions that will prompt and necessitate that each institution examine and change the composition of their program as well as the means of delivery of their preservice teacher education program. Parts of the Framework group into two general clusters, the **Contextual Framework** that includes a Vision, Mission, Philosophical Context, Rationale, and Economic Assumptions, and the **Discussion Platforms** that include Relationships of STW and School Curriculum Models, Ohio Teacher Education and Licensure Standards, and Career Theory and Practice, Strategies for Integrating STW into Teacher Education Programs, A Model for Integrating STW into Preservice Teacher Education Programs in Ohio, Outcomes, and Barriers/Issues and Solutions.

Contextual Framework for School-to-Work in Preservice Teacher Education

The Vision for Preservice Teacher Education[3]

As teacher education faculty at colleges and universities in Ohio, the work team sees the ultimate goal of education to be the enrichment of the lives of children by helping them gain the knowledge and skills they need to lead satisfying and productive lives. In contemporary society the quality of life is dependent on having the educational skills needed to participate fully, including those skills

[3] Darcy Haag Granello and Robert G. Berns are acknowledged for their significant contributions to this section.

required for the multiple roles of citizen, worker, family member, and individual.

To prepare teachers for Ohio schools that pursue this goal, universities and colleges must meet the educational needs of aspiring teachers for the 21st century and beyond. Priorities in Ohio for the schools of the future will be based on such initiatives as the Standards for Ohio Schools, Goals 2000, STW, and BEST practices, which will, themselves, continue to evolve. These programs focus on simultaneous changes in several arenas (i.e., teacher education, schools, school and community partnership, state requirements and local curriculums). These elements, in partnership, are required to improve children's learning.

Knowledge, skills, and abilities that ensure the continuous improvement and innovation in the teaching and learning process as consistent with current research findings will be the focus of these programs. The work team sees a future where all teacher education programs in the state prepare individuals who contribute to these priorities. All teacher education programs in Ohio will use that knowledge to update their curricula and better prepare future teachers.

Today, educators know more than ever about how children learn as a result of studies and writings completed by Gardner (1987, 1993), Caine and Caine (1994), Madden (1991), Sylwester and Cho (1992), and Sylwester (1995). Education Psychology and Human Development content, theories and concepts such as learning styles, multiple intelligences, brain-based learning, metacognition and so forth become much more meaningful when placed in the context of STW. Teacher candidates familiar with STW concepts and strategies will be more effective in designing and delivering relevant classroom experiences to individual learners.

Contemporary assessments of the educational performance of United States students reinforce the notion that children need stronger skills beyond the minimal levels relating to the areas of mathematics, science, technology, and communication. In addition, current trends for globalization in work settings suggest the need to emphasize social perspectives and skills relating to international connections. Finally, some critics of the U.S. educational system have strongly advocated reform to develop school learning environments that emphasize the interdisciplinary nature of problem solving in the real world of work that children face in school and outside school.

The work team sees a future where prospective teachers learn the following teaching and learning principles:

- Children's learning is enhanced when teachers focus on the child.
- Children learn more and retain it longer when they apply their knowledge and skills to meaningful contexts.
- An important role of the teacher is to help children make connections between what they are learning and how it applies to "real world" problems (including career-oriented situations). Effective teachers facilitate children's understanding of why they should learn the content.
- Authentic (contextual) teaching is a pervasive, powerful tool in improving children's performance.
- Children learn best when new ideas are connected to what they already know and have experienced.
- Children learn best when they are actively engaged in applying and testing their knowledge using real-world problems.
- All children can learn. The wide diversity of learners in the state requires an understanding of a variety of cultures, races, aptitude levels, and interests.

- Prospective teachers will be prepared to teach effectively across a variety of disciplines, cultures, races, and aptitude levels.

The compelling nature of the need to transform preservice teacher education programs is reflected in the business literature that indicates that knowledge has become the key resource, the basis for the work of the world, and that wealth-creating activities will not be the traditional land, labor, and capital, but rather the application of knowledge to work and to multifaceted uses for the living of productive and satisfying lives. All of education must respond to an unprecedented challenge to enable children to achieve in this transformed world.

The faculty of colleges and universities throughout Ohio must play a significant role in producing teachers who are innovators and who connect with the community, including the parents of their children, businesspeople, and community leaders. These newly educated teachers will be expected to implement a curriculum that is directed toward meeting the needs of children and our society. They must be prepared to create learning environments that enable those needs to be met. They must also set high standards for all children.

School-to-work can provide a focus and a directive for organizing the academic and skill-based outcomes of formalized schooling. Prospective teachers, from the early days of preparation to the moment they enter their classrooms as professionally-licensed faculty, must be able to function successfully in the schools of the present and future.

Prospective teachers need to understand the role of STW in enhancing the curriculum and be prepared to competently contribute to effective educational outcomes. Examples of specific areas in which university preservice teachers might be prepared appear below:

- Offer experiences for students to learn a particular subject competency in the context of the workplace. Through contextual learning, children will see how a concept, piece of information, or skill is applied in work settings. From that vantage children will better retain the knowledge and will be able to apply it in new settings and other contexts.
- Offer experiences that allow children to explore career opportunities identified through career pathways and realize for themselves the need for post-secondary education.
- Offer experiences that allow children to shadow individuals in a variety of work settings.
- Support STW activities beyond their classrooms.

In order to graphically show the variety of ways that children experience work, a Work-cluster Concept Map was developed by the work team (Appendix A). Introducing children to work experiences can be accomplished through any one of the Work clusters depicted in Appendix A. The Work clusters are not exclusive but more representative and are:

- Career/Skills/Pathways,
  - Special Careers
  - Relationship to Content
- Definitions of Work,
  - Traditional Definitions
  - Emerging Definitions
- Stages of Development,
  - Childhood Play
  - Work at School
  - Work at Home
- Beliefs/Attitudes
  - Pro-social Beliefs
  - Alternative Conceptions

The Stage of a Child's Development, depicted in the Concept Map, and child interest are principal in order to make any instructional platform outlined here relevant. How does work differ from play? Why are some activities compensated and others not? In order to address these concepts preservice teacher educators can help teachers refine their district's curriculum framework; to review it for pieces that are already embedded, and when concepts are missing, identify appropriate venues for inclusion.

Mission of School-to-Work and Preservice Teacher Education's Role

School-to-Work and Preservice Teacher Education[4]

The mission of School-to-Work in Ohio is to ensure that every Ohio child graduates from high school and beyond with the knowledge and skills needed to succeed in the ever-changing world of work – and is prepared for lifelong learning. To accomplish this, necessary components of STW must be utilized in the reformulating/reconceptualizing of preservice teacher education programs.

School-to-Work involves three core elements:

- school-based learning,
- work-based learning, and
- connecting activities between the two.

School-based learning is classroom instruction based on high academic and skills standards, and work-based learning offers a wide

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[4] Robert G. Berns and Darcy Haag Granello are acknowledged for their significant contributions to this section.

spectrum of experiences to students from field trips to workplaces to job shadowing to structured training and mentoring at work sites. Examples of connecting activities include the integration of classroom and work site experiences, matching pupils with participating employers, training work site mentors, and building and maintaining bridges and communication between the school and workplaces beyond schools. For this mission to be successful, preservice teacher preparation programs need to integrate STW into the preparation of future teachers and school personnel.

School-to-Work in a Philosophical Context[5]

A successful, comprehensive and integrated STW system encourages all children to prepare for membership in their communities, whether that community is their family, peer group, class, job site, state, nation, or world. It must encourage all children to look ahead to their educational and employment opportunities and choices. It must substantially improve learning through interesting and relevant experiences that integrate school-based and work-based learning and foster real-world applications of principles and concepts.

For a school-to-work system to be effective, education is the key component. Therefore, school-to-work, both conceptually and operationally, needs to be placed in a philosophical context to determine potential points of congruence with existing school practice as well as potential points of resistance. Since STW has profound implications for curriculum design and development, it should be juxtaposed with dominant orientations to curriculum that exist in the curriculum literature. Of the numerous constructs available, perhaps the clearest one is the conceptual model offered by Elliot Eisner and

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[5] Leigh Chiarelott is acknowledged for his significant contribution to this section.

Elizabeth Vallance (1979, 1985). Their model contains four orientations to curriculum that can encompass virtually all philosophical positions usually studied in educational philosophy courses and hence, most likely to be familiar to practitioners in the field. The orientations are as follows:

- Academic Rationalism
- Development of Cognitive Processes
- Personal Relevance
- Social Adaptation/Social Reconstruction

Curriculum design and development is based upon the construction of learning environments that reflect (1) the needs of the learner, (2) the needs of society, and (3) content or knowledge needs (i.e., what is worth knowing?). The following paragraphs describe how STW relates to each of the orientations and how STW meets the needs enumerated herein.

Academic Rationalism. The Academic Rationalist orientation tends to be characterized by the belief that the acquisition of content is an end in itself and that some content is more valuable than others. At the elementary level, a strong basic education in the three R's is preferred over a more "process-oriented" curriculum. Students are assessed on their acquisition of this content frequently, usually through some kind of norm-referenced measurement device. Along with the three R's, science (especially physical sciences) and history are emphasized, as well as a strong grounding in traditional canons of literature.

At the secondary level, content is solidly linked with those areas most frequently associated with preparation for four-year colleges. Any specialized education is not highly valued in this orientation since it is viewed as situation specific rather than providing a solid "general" education. As might be expected, content tends to

follow the liberal arts model emphasized in most four-year colleges and universities.

The Academic Rationalist views the learner as a "tabula rasa" or an "empty vessel" needing to be filled with the most challenging, timeless content available. The learner's mind is seen as a "muscle" needing to be trained through rigorous learning and thinking experiences, especially those offered through the liberal arts. The learner is generally seen as a passive recipient of this content although one expects that while passively absorbing information, the learner's mind is actively involved in storing and retrieving this information when necessary.

Societal needs are met for the Academic Rationalist through the preparation of a well informed citizenry. Rather than training learners for specific jobs, trades, or in technical skills, a strong, general, liberal education will provide the learner with the base of information needed to tackle any job and succeed. The learner will have developed the necessary "habits of mind" to handle any job that he/she aspires to and has demonstrated the acumen for performing. Advocates of this orientation might include Robert Maynard Hutchins, Allen Bloom, William Bennett, E.D. Hirsch, Chester Finn, Lynn Cheney, Diane Ravitch, and others.

School-to-work should not be viewed as leaning too heavily on vocational education or technical preparation for specific jobs. A liberal arts background that emphasizes basic education is an important aspect of preparing individuals for "work." Instilling a work ethic into each learner is an important curricular goal that requires a challenging curriculum. The use of instructional strategies associated with STW contributes to the development of individuals who contribute to the improved welfare of the community. Therefore, STW can, indeed, be viewed as congruent with philosophical beliefs that constitute Academic Rationalism.

Development of Cognitive Processes The second orientation, Development of Cognitive Processes, also views content as important, but as a means to an end, not as an end in itself. Content is useful inasmuch as it helps learners develop intellectual processes such as critical thinking, problem solving, decision making, and moral judgments. The major goal of this orientation is learning how to learn. Constructivist approaches to teaching and learning find support in this orientation. No specific content or subject has precedence over another, and, in a sense, all learning is viewed as vocational learning since the processes learned are useful in any job, profession, or career. This orientation tends to reduce the reliance on "classical, traditional" subjects and supports the emergence of "new" content that might be more relevant for developing thinking skills.

The learner is seen as an active participant in the learning environment because the teacher takes on a different role in guiding the developmental process of thinking rather than primarily transmitting information. Thus, the learner engages the content usually at the application level or higher on Bloom's Taxonomy. Advocates of this orientation lean heavily on Bloom's Taxonomy and especially on moving beyond simply memorizing and/or comprehending.

Society's needs are met by having a highly intellectually flexible citizenry who can adapt to the career changes these individuals will need to make throughout their lives. Businesses and industry are crying out for graduates who "know how to think" rather than those who are narrowly trained for a specific vocation or profession. This orientation prepares citizens who can handle the dilemmas presented by a post-modern world because they have developed the capacity for lifelong learning and critical thinking. Advocates of this orientation

might include John Dewey, Jean Piaget, Benjamin Bloom, Lawrence Kohlberg, and Jerome Bruner.

School-to-work is generally supported by this orientation because STW stresses the importance of the *processes* involved in work rather than specific knowledge or skills. As noted earlier, emphases tend to be placed on the intellectual skills needed to be an effective worker in any business, profession, career and life. Workers, whether entrepreneurial, management, or labor, need to be lifelong learners and highly adaptable to the ongoing changes in the world of work and the problem-solving skills necessary to succeed in that changing world. Rather than the play/work or learning/working dichotomy, the learner's development of the relationship of the concept of work, learning and play from home and school experiences is an important belief in STW within this document.

Personal Relevance. The third orientation, Personal Relevance, closely follows the existentialist philosophy. The individual learner best determines the content knowledge one needs to appropriate from all the possible content available. The key element of the Personal Relevance orientation is choice. The learner should decide which outcomes s/he needs to meet, which learning experiences will best enable the learner to reach those outcomes, the order in which those experiences will be encountered, and the manner in which the attainment of outcomes will be assessed. This makes the learning authentic to the learner and the outcomes meaningful to attain. Along with free choice, the learner also assumes responsibility for his/her learning. The term, self-motivation, becomes a redundancy since the learner will choose what s/he wants to learn. In essence, educators don't "teach" anyone anything. The learner chooses to learn or chooses to resist what educators want her/him to learn. Ultimately, the choice of content learned is up to the learner.

Clearly, learner needs are met through the choices made. The teacher takes on the role of resource person or sometimes, co-learner. The individual can choose to move as quickly or slowly as she or he wants through the curriculum outcomes that are selected. "Currere" (the root word of curriculum) becomes the experience of running the race rather than the race course to be run. The learner thus becomes an authentic 'whole" person rather than whatever the educational system wants her/him to be.

Society's needs are met through the development of these "whole" persons. A self-actualizing population is a mentally healthy, productive population. Individuals who learn to make choices and take responsibility for their actions should not need the threat of laws and rules to govern their actions. As long as they understand the social consequences of individual actions, these individuals should contribute to the development of a healthy society. Advocates of this orientation might include Carl Rogers, Art Combs, Rollo May, William Glasser, A. S. Neill, and, of course, Jean-Paul Sartre and Albert Camus.

The implications of the Personal Relevance orientation for STW are rather intriguing. STW allows for greater choice in selecting and preparing for one's life's work which may include a variety of work and career experiences. By learning more about the wide variety of careers throughout an individual's education, learners can make better-informed work and career choices throughout their lives.

School-to-work also advocates the development of responsible workers willing to face the consequences of their actions. Providing work-based learning opportunities is important as is self-evaluation in assessing one's progress toward career goals. Experiences at work sites in the community should be predicated on what the learners would find to be personally meaningful.

Social Adaptation/Social Reconstruction Social Adaptation/ Social Reconstruction are really opposite sides of the same concept. Social advocates see content as being determined by what is needed to best fit into society. This content includes the knowledge, skills, and attitudes necessary to raise a family, get a job, earn a living, and contribute to the maintenance of the social fabric. Preparation to meet society's needs include all college preparatory experiences, vocational/technical experiences, and/or family living experiences. The belief is that society needs learners who can easily assimilate and adapt to the ever-changing demands of the existing economic system.

The Social Reconstructionist, on the other hand, believes that content knowledge should be used to teach learners how to change society. The current dominant culture is beset by a variety of social ills, and Social Reconstructionist believe that merely to teach learners to fit into that flawed social fabric is miseducative. Advocates of this orientation tend to use critical theory as their content and critical pedagogy as their teaching technique.

In the Social Adaptation orientation, learners' needs are met by preparing them for specific roles in the world of work, in the community, and in the family. In other words, learners' needs are met by meeting institutional needs. The Social Reconstructionist sees learner needs being met by creating change agents who can proactively identify social ills and work to correct them. Inherent in this process is an analysis of the problems created by a capitalist economic system and the implicit class structure it creates when a segment of society provides labor for wages while another segment gains profits based on capital invested. The problems that result from the ensuing class struggles provide the basis for change.

Society's needs are met for the Social Adaptationist by first identifying the specific social needs and then providing curricular experiences that prepare learners to meet those needs. By identifying the skills one needs for whatever role(s) one is to assume as an adult, the basis for the curriculum is formed. The curriculum is built on meeting those needs. For the Social Reconstructionist, the ultimate goal is to create a "social utopia" where individuals are constantly working to realize an "ideal" society, free of class struggle and the widening economic gap between the "haves" and the "have-nots." Advocates of the Social Adaptation orientation might include Franklin Bobbitt, W. W. Charters, presidents of most companies, and Bill Gates. Social Reconstructionists might include Karl Marx, Paulo Friere, Henry Giroux, and Peter McLaren.

For STW, the Social Adaptation orientation probably constitutes a "best fit" in terms of the national STW philosophy. The key element would be the necessity of matching the workplace needs with the school curriculum. The SCANS materials certainly provide a linkage between the Social Adaptation orientation and many of the STW concepts since it divides work competencies into general and interpersonal (Appendix E).

The Social Reconstruction orientation provides a serious challenge to the STW philosophy because of the reconstructionists' emphasis on a critique of inequitable educational preparation that in effect creates "closed" workers and denies more intellectual and critical curricula for some. However, STW is not intended to create "mindless automatons" that will fit nicely into the "cogs of our economic machinery." Rather, balance is necessary to attain and sustain economic well-being with a commitment to social change necessary to narrow and ultimately eliminate the economic chasm between the "haves" and the "have nots."

STW pulls from each of these orientations when curricula are developed. STW builds a strong work ethic, supports character education and links successful workers with a solid foundation in basic skills and a strong liberal education (Academic Rationalism). School-to-work also helps develop lifelong learners who are highly flexible and skilled in problem solving, critical thinking, and decision making (Development of Cognitive Processes).

STW allows for choice, encourages learners to take responsibility for their decisions, and emphasizes the need for meaningful learning experiences in the school and in the workplace (Personal Relevance). Finally, successful workers need to be able to change the ineffective elements of the system from within. In other words, successful change agents must also be able to understand the system(s) they are trying to change, and to do so, they must first fit into the workplace successfully. STW contributes to that quest (Social Adaptation and Social Reconstruction).

Rationale Behind School-to-Work[6]

Individuals who will be successful in the marketplace of the 21st century will surely excel at solving problems, thinking critically, working in teams, and learning constantly on the job. In this new global and technology-driven economy, the skills of the workforce are a company's major competitive advantage. The best jobs in this emerging workplace will go to those who are academically strong and highly skilled. Even these skills will not be sufficient. Individuals must also master listening and communicating, applying reasoning and problem-solving to work-related problems, creating teams in which leadership emerges, and exhibiting a strong work ethic. Corporate,

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[6] Darcy Haag Granello and Robert G. Berns are acknowledged for their significant contributions to this section.

community, and individual success in this new economy means that our educational system has to change, too.

Educators can no longer afford a tiered educational system with high standards of academic preparation for some, vocational preparation for others, and a low-standards general track for still others. Today's schools must offer all P-14 children challenging, relevant academics and meaningful work-based learning experiences in their communities.

The consequences of our educational system being out of sync with the changing nature of work have taken a toll on American business. More than 50% of U.S. employers say they cannot find qualified applicants for entry-level positions. It is estimated that U.S. business spends nearly $30 billion training and retraining its workforce. Until society fully addresses the mismatch between what and how children are learning and what they will be required to know and be able to do, to ensure successful careers, this figure is likely to continue to rise.

Young people, their families, and the community expect every individual to be prepared to enter the workforce upon completion of schooling. However, adolescents who currently are engaged in work need to know what work, attitudes, responsibilities, expectations, and knowledge they are expected to possess. It is expected that schools bear the responsibility for creating successful, well-marked paths P-14 children can follow to move from school (not necessarily at the end of schooling) to first jobs or from school to continued education and training. STW connects school-based quality academic classes with experiences in the workplace. It builds partnership, understandings, and communications between schools and employers and leaves room for local control of local needs.

STW helps students, families, businesses, and the communities achieve their goals by turning local businesses and communities into classrooms for work-based learning experiences. Parents can become more actively involved in all aspects of their children's work/career exploration and development when early work based opportunities are local and are aligned with school based curricula. Appendix D attempts to show a multifaceted depiction of "The Dimensions of School" that includes three facets: levels, core areas, and delivery systems. The levels are early childhood, middle childhood, adolescents, and beyond adolescence. Core areas considered in schooling are: learners & parents, curriculum, instruction, assessment, safe schools, personnel & education services, professional development, and continuous improvement. Delivery systems used to educate our children are: public, private, chartered non-public, and home schooling.

Young workers become encouraged because their paychecks and progress successively improve, their hopes rise, and the community and the nation become stronger, because productivity increases our ability to participate in world markets. When this happens, everyone wins.

STW encourages P-14 children to develop their interests and start learning about how they might apply those interests, talents, skills and aptitudes in the world of work. P-14 children and their parents can then take an active role in planning their courses and work experiences so they can better prepare for their next steps to a job, an apprenticeship, a two-year technical or community college, or a four-year college or university. "The Dimensions of Work" (Appendix B) to be considered during these decisions are aligned in three dimensions: self/individual concerns, skills and behaviors, and beliefs and attitudes. The self/individual dimension, according to the graphic depiction on Appendix B, is concerned with developmental level,

demographics, compensation level, status and power, cultural issues, and functions of work. The beliefs and attitudes dimension tend to align along prosocial and alternate beliefs. Skills and behaviors dimension consists of two components: skills/careers and definitions of work.

Economic Assumptions[7]

A salient reason why STW has become so engaging is that it ameliorates the effects of children reaching the marketplace and the doors of an employer today and tending to arrive: (1) with scant or inappropriate skills, (2) developmentally or attitudinally unprepared, (3) clueless about what it is that they are really facing in an employment situation, and/or (4) shocked regarding the low value of their services at the entry level.

Economic factors are important motivations that drive our interest in improving school-based learning to work-based learning. Since the STW initiative is intended to result in a "better life" for individuals by providing a healthy economy, the following set of economic assumptions contributes to an understanding of the rationale behind the integration of STW in preservice teacher education so that teachers will be better prepared to meet the work needs of their children.

- A market-oriented system is based largely on the individual accepting responsibility for the quality of his/her standard of living. In general the more productive the individual, the higher the remuneration for their services.
- Productivity is a function of the experience, education,

[7] Abbejean Kehler is acknowledged for her significant contribution to this section.

skills, motivation, general level of physical and mental health, attitudes, talents and other abilities of the individual

- The level and quality of education possessed by the individual has a direct bearing on the work opportunities for which s/he is qualified and which will be offered.
- Any individual's standard of living is a function of his/her ability to market their skills (in the broadest sense of marketing) in a competitive labor and employment marketplace.
- Employers seek employees who are best able to demonstrate and perform tasks within a set of "workplace cultural norms" (e.g., arriving on time; being ready to work; being reasonably freed from personal distractions and other outside activities; recognizing the contribution they make to the overall output; realizing the importance of competitiveness and profitability of the enterprise; being honest; and focusing on the tasks required to meet supervisors' approval).
- Market-place dynamics are already in place, such that if the employee does not contribute more to the value of the output of the organization than that employee costs in salary and benefits, then it is no longer in the best interest of the employer to extend employment.
- Private enterprise employers are profit seeking. Without a return on the investment for the business, in time, they will no longer be able to remain in business.

Of critical importance is an understanding of individuals and their role in the economic activity of work. The following list of assumptions is intended to contribute to such understanding.

- Individuals are rational decision-makers.
- People make choices relative to work based upon a set of motivating factors. Not choosing work is also a choice, which results in consequences that may or may not be anticipated by the individual.
- The resultant trade-off between work and non-work (leisure) is a part of each work-related choice. By engaging in work, an individual relinquishes time and energy, both of which have value.
- Generally, individuals are willing to work more hours as the income from those hours increases. However, some individuals choose fewer hours of work and the resultant income loss in order to devote more time to family and leisure pursuits.
- The value an individual places on a particular combination of work and leisure is subject to a cornucopia of factors such as past experiences, relationships, responsibilities, family obligations, motivations, and interests.
- Every individual experiences a limitation of choices based on skills, attitude, health, stamina, internalized or externalized motivations, aptitude, self esteem, and public or social pressure.
- Not all choice alternatives or combination of alternatives are agreeable or pleasurable. Typically, however, when an individual spends energies and resources in work, s/he receives income. With this income, the individual may choose to improve his/her standard of living by consuming additional goods and services.
- Work decisions are essentially an exchange. The exchange may occur between an individual and another individual or an individual and an employer. Of course, an individual may also be self-employed.

- Activities that improve the knowledge, skills, talent, education, opportunities, and personal attributes increase the likelihood of a rising standard of living.

The workplace is changing as the industrialized economy shifts to an information and service base. Improvements in communications and transportation systems, the downfall of Communism and resultant increasing numbers of nations and people involved with Capitalism, the aging of the people of the world and other demographic shifts, and the explosion of technology advancements are resulting in an increasingly-changing employment picture (Thurow, 1996). For example, workers no longer have to be in a specific place at a specific time to accomplish work objectives. Indeed, individuals now in work settings, and those entering, are facing radically reduced expectations with regard to stability of work life as well as the unpredictability of employment options.

Each individual must become responsible for the accumulation of knowledge and skills in anticipation of workplace changes. Although it remains unclear how employment trends will work their way through the economy, some have predicted a shorter work week, shifts to information-based technology-oriented jobs, and greater employment in the non-profit sectors of the economy. Individuals must assume the responsibility for staying on top of these trends in order to provide best for the economic security of themselves and their families.

Discussion Platforms for School-to-Work in Preservice Teacher Education

Relationship of School-to-Work and State Curriculum Models[8]

The requirements of federal and state legislative mandates are broad and more demanding than ever before. These sweeping mandates for reform issue a clarion call for making connections between and among federal and state initiatives to create a seamless curriculum which truly prepares students to be productive citizens. A body of research on effective schools has informed us that students learn best when they can actively apply and evaluate their learning using real world problems. The school- and work-based connections elaborated by STW provide strong opportunities for practitioners and preservice educators to align the Ohio Model Curriculum and the learning outcomes of the Ohio Proficiency Test with these real world programs.

The Ohio Model takes into consideration both explicit and implicit curriculum components. According to Appendix C, Explicit Curriculum consists of Content and Process. Content elements are literacy, numeracy, communications, citizenship and inquiry. Process elements are: critical thinking, creative thinking, problem solving, decision making and scientific method. It has been suggested that this listing is not complete and that at least one other element be added: demonstrated relevance of learning. The Implicit Curriculum elements are compliance, competition, cooperation, reward systems (for successes and failures), and social etiquette (e.g., punctuality, courtesy, and reliability). Again, it has been suggested that this listing is not complete and that at least one other element be added: prepared

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[8] Sharon Yates is acknowledged for her significant contribution to this section.

for integrating to workplace (e.g., positive work ethic and productivity).

The Ohio Model Curriculum has been approved as a necessary component of preservice teacher education programs; now, the alignment of the model curriculum with P-14 programs focused upon workforce development is critical. Our complex technological society requires that high school and college graduates reach levels of skill and competence that have not previously been demanded. Blue-collar workers will only comprise 10% of the workforce in 2000. "Knowledge work" jobs (Schlechty, 1997) require mastery of advanced content and higher order thinking skills previously slated for college-bound tracks. The 1991 report, *What Work Requires of Schools: A SCANS Report for America 2000*, identified foundation and basic competencies that have become a frame of reference for workplace skills. The transdisciplinary integration of the SCANS foundation and basic competencies into the Ohio Model Curriculum will assist students in making a successful transition into the world of work.

These competencies can be divided into two categories, Description of General Competencies and Description of Interpersonal Competencies. The General Competencies include: information processing, computer usage, technology usage, resourcing, oral communication, written communication, reading, mathematics usage, and systems usage. The Interpersonal Competencies include: leadership, group dynamics, problem solving, responsibility, self-confidence, self-management, sociability, integrity, and personal identification. The SCANS foundation and basic competencies can be logically aligned with the Ohio Model Curriculum and the learning outcomes for the Ohio Proficiency Test. An example follows:

The following is a learning outcome for the ninth grade Ohio Proficiency Test

> Given everyday/functional reading materials, the student will identify, locate, and use information in items regarding
>
> 21 directions of two or more steps
> 22 the selection and use of appropriate reference sources and illustrative materials
> a Examples of reference sources/illustrative materials would be dictionary, encyclopedia, almanac, atlas, phone book, card catalog, periodical/newspaper, schedule, table of contents, and index
> b Examples of skills/processes would be using alphabetical order; skimming and scanning; reading charts, tables, diagrams, graphs, maps, labels, and signs
> 23 the meaning of vocabulary words used on an application form
> 24 the use of propaganda

A SCANS Foundation/Basic Skill that includes the same process is reading

> Locates, understands, and interprets written information in prose and documents-including manuals, graphs, and schedules--to perform tasks, learns from text by determining the main idea or essential message, identifies relevant details, facts, and specifications, infers or locates the meaning of unknown or technical vocabulary, and judges the accuracy, appropriateness, style, and plausibility of reports, proposals, or theories of other writers

It is important that all prospective and practicing educators be knowledgeable of both the learning outcomes in the Ohio Model Curriculum, which embed National Standards, and the SCANS skills. Good preparation and implementation of engaged learning focused on these outcomes can contribute toward P-14 children becoming both responsible citizens and productive members of the workforce.

Relationship of School-to-Work and Ohio Teacher Education and Licensure Standards[9]

In addition to relating STW to state curriculum models, the relationship between school-to-work and the 1998 Ohio Teacher Education and Licensure Standards needs to be explored when designing and adapting curriculum for preservice teacher education programs to integrate STW in a systematic fashion. Within a STW system, the performance of teachers is different than when operating without such a system in place. Since school-to-work actually relates to all of the 10 performance areas in Ohio's licensure standards, STW must be considered when developing teacher education curriculum intended to prepare preservice teachers so that the teacher:

- has a thorough understanding and knowledge of subject matter and uses such knowledge to create effective learning experiences for students,
- understands how students learn and develop, and creates opportunities for each student's academic development,
- understands differences in how students learn and provides instruction to accommodate such diversity,
- plans instruction based on knowledge of subject matter, of students, and of curriculum goals and models,

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[9] Robert G. Berns is acknowledged for his significant contribution to this section.

- uses a variety of instructional strategies that encourage each student to develop critical-thinking and problem-solving skills,
- creates a learning environment that encourages active, engaged learning, positive interaction, and self-motivation for all students,
- effectively communicates in the classroom by using a variety of communication skills, including verbal and nonverbal techniques, technology, and media,
- effectively uses formal and informal assessment strategies to evaluate student progress,
- analyzes past experience and pursues professional development opportunities to improve performance, and
- works with parents/family members, school colleagues, and community members to support student learning and development.

A Model for Integrating School-to-Work into Preservice Teacher Education Programs in Ohio[10]

Integrating school-to-work concepts, principles, and practices throughout all preservice teacher education programs in all colleges and universities in Ohio is a formidable task. College and university faculties, including those involved with the preparation of new teachers, generally have not been involved with the STW initiative to date. In fact, the "School-to-Work Integration Project: Preservice Teacher Education Framework" is the first project of its kind in Ohio, and, as far as is known, in the country. Part of the Framework, thus, is to be a proposal for spreading the initiative throughout the state.

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[10] Dora L. Bailey and Robert G. Berns are acknowledged for their significant contributions to this section.

Integration will not occur in preservice teacher education programs without knowledgeable, supportive faculty. The professional development of faculty involved with these programs thus takes on a critical role in the process. Conducting a professional development conference, an idea first introduced by Dora Bailey in the very early stages of the project, soon became a major developmental effort of the project's work team. The resultant three-day conference that was held at Bowling Green State University in July, 1997, was the first organized professional development activity of its kind. The prototype was replicated in 1998, co-hosted by Kent State University and Youngstown State University. The conferences were evaluated so that they could serve as a platform for discussion at other universities and colleges.

During the 1997 conference, two professors of education from all public universities represented in the State University Education Deans (SUED) organization were invited to the conference. During the 1998 conference, faculty from private colleges and universities were the focus for invitation. An outline of the three day conference follows.

Integrating School-to-Work into Preservice Teacher Education: A Conference for Professors of Education

Thursday - 10:00 a.m. - 1:00 p.m.
Opening Session and Luncheon

The key note speaker was J. D. Hoye, National Director of School-to-Work. STW regional coordinators, deans, representatives from the STW sponsoring state agencies, and other dignitaries were invited to this opening session and luncheon.

Thursday - 1:00 p.m. - 5:00 p.m.
Learning about School-to-Work

This session was a simulation created by Patricia M. Erickson where participants were asked to see themselves as a part of a Consortium on Schools for the Future that was being asked to learn about innovative systems. The participants were placed in four "subcommittees" with a facilitator/leader, who was a member of the project's work team that planned the conference. The teams wrote questions for J.D. Hoye based on her morning speech. The teams of participants decided what their goals might be as they planned to learn about innovative practices, especially STW. Facilitators took their committees through a simulated work assignment. A large part of the simulation was attendance at two 20-minute mini workshops. The presenters were chosen for their knowledge about innovation in learning practices and/or student participation in work-based learning. Participants had two opportunities to select a mini session to attend.

Thursday Evening - 6:00 p.m. - 9:00 p.m.

Following dinner, a two hour session allowed the participants to review their own work experiences by responding to the "Individual Inventory of Non-teaching Work Experiences," review and select interview questions for the next day's externship, and become aware of the SCANS competencies for successful work lives. Participants were then given their externship assignments for the next day, and questions were answered.

Friday - 8:00 a.m. - 4:00 p.m.

Following "breakfast-on-your-own," participants drove in pairs to work sites within a one-hour driving distance. The

participants interviewed and observed workers in a variety of departments, including management.

Friday Evening - 5:30 p.m. - 8:00 p.m.
Sharing Externships

After a planned dinner, participants engaged in sharing what they learned during their externships. Sharing began by individuals reflecting about their day on a Reflection Sheet. These reflections were the backdrop for Marcia A. Rybczynski's "Creative Reconceptualization" activity where groups played with analogies that could pictorially show what was learned in the externship. After creating the pictorial representation, groups shared and explained their pictures.

Saturday - 8 :00 a.m. - 9:45 a.m.
Breakfast and Connecting STW to Preservice Teacher Education

All participants had breakfast together to foster dialogue about their externship experiences and their experiences with the conference. Then, groups of participants created a Mind Map or WEB centered around "School-to-Work and Its Relationship to Preservice Teacher Preparation." The mind mapping process and model of a mind map were shared first.

Saturday - 10:00 a.m. - 10:15 a.m.
"Sleepy River Hollow: The Dawning of a New Day" Skit

The work team performed a Readers' Theater for the participants. This skit, written by Robert G. Berns, showed a new faculty's enthusiasm for STW in relation to a myriad of fellow faculty reactions. Eventually all faculty came around to consider and value the notion of STW infused somewhere in their classes and the preservice teacher education program.

Saturday - 10:45 a.m. - 11:30 a.m.
Action Planning and Reporting

Groups of participants created a list of ways to begin to infuse School-to-Work into their preservice teacher education programs. This list, or beginning action plan, was guided by a "Force Field Analysis" procedure, developed by Marjorie Ward. Copies of each group's list were distributed to the participants.

Saturday - 11:45 a.m. - 1:30 p.m.
Luncheon: Speaker

Dr. Ernest Savage, Associate Dean of the College of Technology at Bowling Green University, spoke about the importance and need for change and School-to-Work.

After learning about STW through the activities of the conference, the participants were encouraged to create a plan for integrating STW into preservice teacher education programs at their home institutions. Once a college or university begins to integrate school-to-work into their preservice teacher education programs, it is helpful for faculty to have an opportunity to share their progress and learn from each other. Therefore, a plan for such sharing was created and implemented in 1998.

Eight universities were provided funds to plan and implement projects that would move forward the integration of school-to-work into their preservice teacher education programs. The principal investigators of these eight projects met monthly to share plans for their projects, ideas generated during the course of their projects, and information they had learned during their projects. The names of the principal investigators are listed on the inside front cover of this document.

Strategies for Integrating School-to-Work into Teacher Education Programs

Although every college and university will integrate STW into their preservice teacher education programs in their own ways, the following strategies were discussed by the work team and might prove helpful in the process.

- Integrate STW throughout a preservice teacher education program and within specified courses, clinical opportunities, and field experiences including early experiences and student teaching.
- Provide teacher education students with experiences in relevant workplace settings representing a variety of relevant career clusters and pathways. They should discover, through observation, actual experiences, and interviewing:
  - how SCANS competencies are applied in the workplace,
  - how academic content knowledge and skills are applied in the workplace,
  - how workplace problems can serve as a basis for subject matter content, and
  - how important positive attitudes and work ethics are for success in the workplace.
- Provide a vehicle for teacher education students to learn STW concepts, principles, and practices from an interdisciplinary approach.
- Provide teacher education students with a variety of suggestions for motivating their future students, including showing relationships between content being learned and careers and the workplace.

- Role model STW concepts, principles and practices within the teacher education program by building and using partnerships.

Barriers/Issues and Solutions

The implementation of any new initiative, philosophy, or strategy takes time, energy, and resources. A few of the barriers that will need to be overcome for successful integration along with possible solutions include the following:

- *Lack of knowledge and support by faculty.* Conferences will help educate faculty and gain their support. Distributing literature about STW and organizing a discussion group over the Internet would assist faculty to continue to learn more about STW techniques and methodologies.
- *No room in a student's teacher education program requirements.* STW can be integrated into existing courses, clinical opportunities, and field experiences. New models need to be continually implemented, shared and rewarded. Also preservice teachers should be queried about the effectiveness and usefulness of these approaches.
- *Lack of resources.* The STW Workforce Development Clearinghouse allows for the identification of relevant resources (www.stwclearinghouse.org/). Also, existing ERIC Clearinghouses can be used for finding resources. Publishers are gradually producing products that can be used by teachers and preservice for STW integration.
- *Lack of recognition for faculty involvement in STW.* Ohio's State University Education Deans (SUED) organization has supported the integration of STW into

preservice teacher education programs by co-sponsoring the Preservice Teacher Education Framework project. This support has also served to encourage faculty involvement in this initiative. Additional methods for involving administrators at colleges and universities in STW activities would also contribute to faculty involvement. Encouraging administrators to offer recognition and rewards to faculty involved with this integration effort would be yet another means of demonstrating support for the initiative, especially in the areas of promotion, tenure, and merit considerations.

The leaders of the STW initiative should approach administrators of colleges and universities and encourage them to offer recognition and rewards to faculty involved with the integration of STW into their teacher education curriculum. Positive impact of STW involvement on promotion, tenure, and merit decisions would provide strong incentive to faculty.

Outcomes for Preservice Teacher Education Programs Related to School-to-Work[11]

The integration of STW into preservice teacher education programs is intended to result in outcomes such as the following. The preservice teacher will:

- Explain school-to-work concepts, principles, and practices.
- Identify knowledge and skills necessary for success in the

[11]Robert G. Berns is acknowledged for his significant contribution to this section.

workplace (e.g., SCANS).

- Help children develop positive attitudes toward work.
- Assist parents to see connection between school, subjects, and workplace.
- Analyze how the concept of work presents itself in school.
- Analyze the connections between work and culture.
- Identify purposes for learning and utilizing academic subjects (e.g., writing, reading, math, and science) in a variety of work settings.
- Apply knowledge and skills from multiple disciplines to work environments and tasks.
- Apply STW concepts in such a way that it is seamless within the curriculum.
- Demonstrate the ability to map cross-discipline content and develop content for integration.
- Identify resources for classroom use with children when applying STW concepts, principles, and practices.
- Design lessons that will include learning in a real world context.
- Write learning objectives that apply STW concepts and principles.
- Use a variety of approaches to apply school-to-work concepts and principles.
- Use authentic assessment strategies to assess relevant student achievement.

Conclusion

The National School-to-Work initiative has been funded on the P-14 level with Ohio recognizing the necessity of educating college and university faculty for simultaneous change. Professional development of educators is an important link in advancing the STW

initiative, which addresses the need to prepare tomorrow's workers for performance in future work settings.

The speed with which colleges and universities can integrate STW in their preservice teacher education programs will be dependent upon the support gathered by faculty as they complete conferences designed to educate them about the STW initiative and its place in preservice teacher education programs. With college and university funding generally declining across the state of Ohio, and college and university faculty assuming expanding roles and functions, the time available for professional development and resultant curriculum and course modifications becomes more limited. Funds provide impetus and support for faculty to elevate STW as a priority in their professional activities.

Significant progress has been made in the integration of school-to-work into preservice teacher education programs across the state. Professional development activities for Education faculty at publicly and privately funded colleges and universities have resulted in an awareness by faculty of school-to-work and the need to prepare preservice teachers to teach effectively in a school-to-work system. Projects at eight universities have moved forward the integration process at those institutions. Plans call for additional projects at those institutions as well as up to 11 other colleges and universities during 1999. Sharing among faculty across universities has been, and will continue to be, an important approach to providing a vehicle for gathering information learned at the institutions that can be used to move the process further in a more efficient manner at all of the universities.

Also during 1999, material will be developed and packaged for use in orienting faculty and administrators at colleges and universities

on STW and the integration of STW into preservice teacher education.

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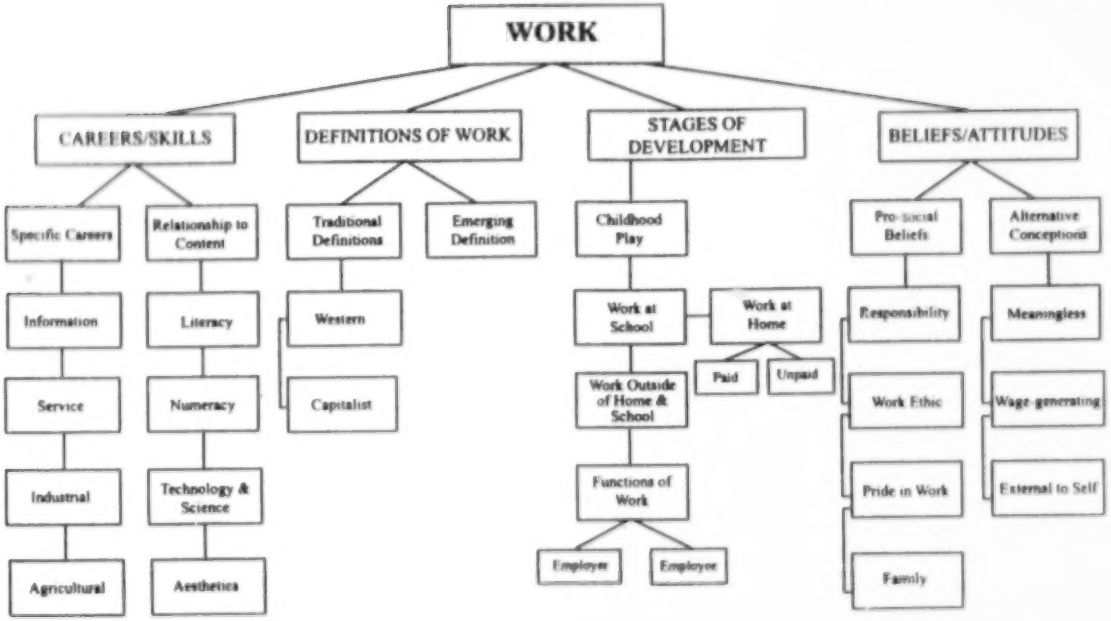
Educate the professor, and you will educate the teachers and their students.

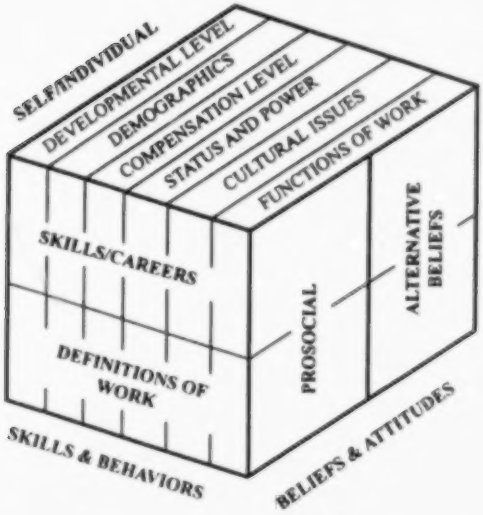
Appendix A[12]



[12]Leigh Chiarelott is acknowledged for his significant contribution to Appendix A.

Appendix B[13]

THE DIMENSIONS OF WORK



[13] Darcy Haag Granello is acknowledged for her significant contribution to Appendix B.

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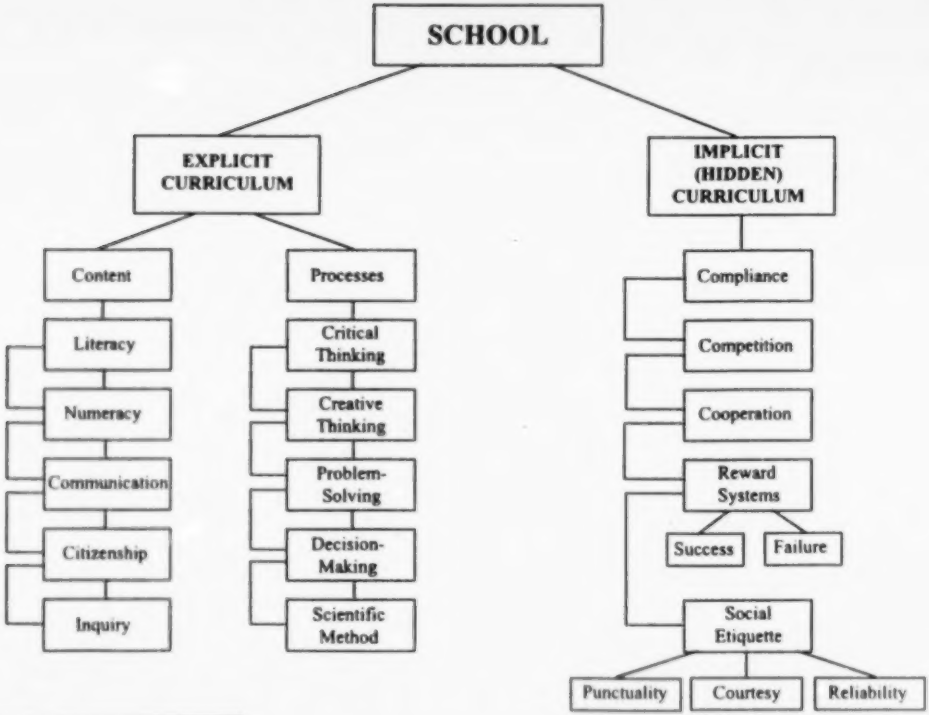
Appendix C[14]



[14] Leigh Chiarelott is acknowledged for his significant contribution to Appendix C.

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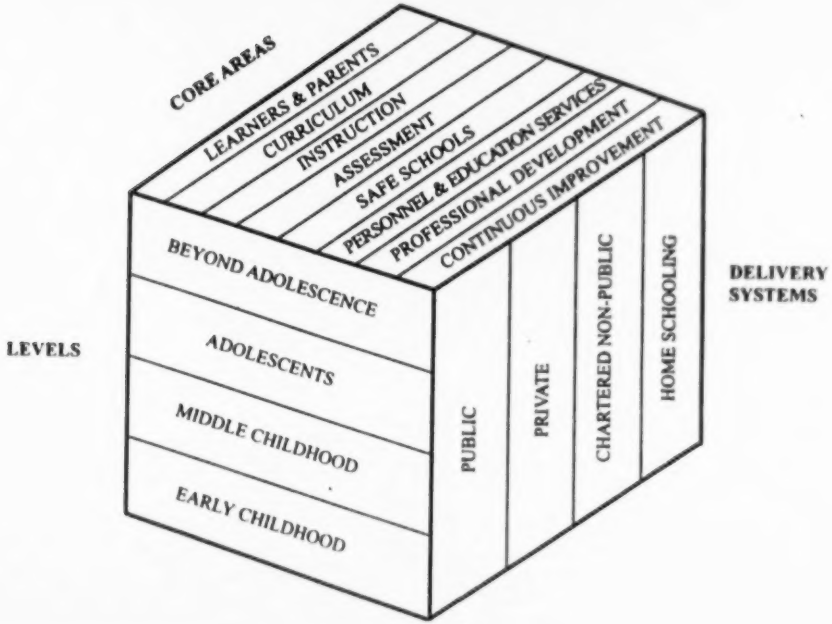
Appendix D[15]

THE DIMENSIONS OF SCHOOL



[15] Darcy Haag Granello is acknowledged for her significant contribution to Appendix D.

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Appendix E

DESCRIPTION OF GENERAL COMPETENCIES[16]

Information Processing

- Identifies the purpose for information search and develops an effective plan for the collection of relevant information using appropriate resources.
- Locates, selects, and evaluates information in an organized manner in order to create clear and concise oral, visual, or written communication.

Computer Usage

- Demonstrates proficiency in the use of computer technology by selecting appropriate programs to fit the needs of the desired outcome.
- Operates, manipulates and integrates word processing, graphics, spreadsheet and data base software programs for written communication and graphic representation.

Technology Usage

- Selects, sets up, and uses a variety of technological tools.
- Identifies and analyzes situations to circumvent, troubleshoot, and solve problems in the respective technologies used.

Resourcing

- Plans and utilizes time, money, materials, facilities, and human resources.
- Selects appropriate human and material resources.
- Allocates human and material resources.

Oral Communication

- Organizes ideas and communicates with clarity oral messages matched to the audience and situation.
- Demonstrates listening with congruent feedback to verbal and non verbal messages.

Written Communication

- Employs the writing process to produce effective written communication for an intended audience.
- Composes, creates, and records information completely and accurately to communicate thoughts, information and messages.

Reading

- Interprets the meaning of written communication.
- Identifies and explains the main idea and relevant details, ascertains the meaning of unknown vocabulary.
- Judges the accuracy, appropriateness, and plausibility of written communication.

Mathematics Usage

- Approaches practical problems by choosing appropriately from a variety of mathematical techniques and uses data to construct logical explanations for real world situations.
- Expresses mathematical concepts orally and in writing and understands the role of chance in the occurrence and prediction of events.

Systems Usage

- Explains how current social, organizational, and technological systems work and operates effectively within them.
- Explains how a system's structures relate to goals, responds to the demands of the system, and functions within the formal and informal social and organizational systems.

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[16] Sandra G. Pritz is acknowledged for reframing the SCANS competencies for use with teachers in the Department of Defense Dependents' Schools.

Appendix E (continued)

DESCRIPTION OF INTERPERSONAL COMPETENCIES

Leadership

- Demonstrates competencies in leadership through the organization and coordination of group and individual tasks.
- Applies effective communication and listening skills to persuade and motivate others in order to accomplish goals.
- Demonstrates a sensitivity toward individual ideas and beliefs and will generate credibility through competence and integrity.

Group Dynamics

- Organizes tasks and assumes different responsibilities as a contributing group member.
- Through positive interaction with respect for group diversity, negotiates, compromises, and reaches consensus when working toward a common goal.
- Emphasizes process rather than product.

Problem Solving

- Recognizes and defines the problem generates alternative solutions, chooses the best alternative, and implements a plan of action.
- Considers the consequences of these actions and makes informed decisions.

Responsibility

- Initiates and or completes tasks consistently, and exhibits regular and timely attendance and is prepared to work and learn.
- Demonstrates a high level of effort and perseverance towards reaching goals.
- Takes care of materials and equipment, respects the property of others and completes tasks on time.

Self Confidence

- Believes in own self worth and maintains a positive view of self.
- Demonstrates knowledge of own personal strengths and limitations, displays initiative, is aware of impact on others, and responds to constructive criticism.

Self Management

- Sets realistic goals, organizes resources, prioritizes tasks, and monitors own progress.
- Evaluates information and motivates self in assessing progress toward completion of goals.

Sociability

- Demonstrates understanding, friendliness, adaptability, empathy, and politeness in new and on-going group settings, and responds as the situation requires.
- Cooperates as a team member, negotiates to arrive at a decision, demonstrates positive ways of solving conflicts, and re[illegible]es to diverse groups.

Integrity

- Consistently chooses an ethical course of action and displays a pattern of trustworthy behavior.
- Respects the rights and property of others, accepts responsibility for own actions, and understands the impact of abiding by or breaking the rules and regulations.

Personal Identification

- Demonstrates the ability to produce a personal portfolio of major achievements and accomplishments and has successfully produced a resume for employment purposes.

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